

## Muons in soft tissue (ICRP)

	$\langle Z/A \rangle$	$\rho$ [g/cm <sup>3</sup> ]	$I$ [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
	0.55121	1.000	72.3	0.08926	3.5110	0.2211	2.7799	3.4354	0.00
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
				[MeV cm <sup>2</sup> /g]					
10.0 MeV	$4.704 \times 10^1$	7.947				7.947		$6.952 \times 10^{-1}$	
14.0 MeV	$5.616 \times 10^1$	6.198				6.198		$1.271 \times 10^0$	
20.0 MeV	$6.802 \times 10^1$	4.839				4.839		$2.379 \times 10^0$	
30.0 MeV	$8.509 \times 10^1$	3.754				3.754		$4.759 \times 10^0$	
40.0 MeV	$1.003 \times 10^2$	3.205				3.205		$7.661 \times 10^0$	
80.0 MeV	$1.527 \times 10^2$	2.406				2.406		$2.253 \times 10^1$	
100. MeV	$1.764 \times 10^2$	2.262				2.262		$3.112 \times 10^1$	
140. MeV	$2.218 \times 10^2$	2.106				2.107		$4.953 \times 10^1$	
200. MeV	$2.868 \times 10^2$	2.017				2.017		$7.876 \times 10^1$	
300. MeV	$3.917 \times 10^2$	1.982			0.000	1.983		$1.289 \times 10^2$	
318. MeV	$4.105 \times 10^2$	1.982			0.000	1.982			<i>Minimum ionization</i>
400. MeV	$4.945 \times 10^2$	1.988			0.000	1.989		$1.793 \times 10^2$	
800. MeV	$8.995 \times 10^2$	2.063	0.000		0.000	2.063		$3.769 \times 10^2$	
1.00 GeV	$1.101 \times 10^3$	2.097	0.000		0.000	2.098		$4.730 \times 10^2$	
1.40 GeV	$1.502 \times 10^3$	2.152	0.000		0.001	2.153		$6.611 \times 10^2$	
2.00 GeV	$2.103 \times 10^3$	2.213	0.001	0.000	0.001	2.215		$9.355 \times 10^2$	
3.00 GeV	$3.104 \times 10^3$	2.283	0.001	0.001	0.001	2.286		$1.379 \times 10^3$	
4.00 GeV	$4.104 \times 10^3$	2.332	0.001	0.001	0.002	2.336		$1.812 \times 10^3$	
8.00 GeV	$8.105 \times 10^3$	2.442	0.003	0.003	0.004	2.453		$3.478 \times 10^3$	
10.0 GeV	$1.011 \times 10^4$	2.476	0.005	0.005	0.005	2.490		$4.287 \times 10^3$	
14.0 GeV	$1.411 \times 10^4$	2.525	0.007	0.008	0.007	2.546		$5.874 \times 10^3$	
20.0 GeV	$2.011 \times 10^4$	2.574	0.011	0.012	0.009	2.607		$8.202 \times 10^3$	
30.0 GeV	$3.011 \times 10^4$	2.627	0.018	0.022	0.014	2.681		$1.198 \times 10^4$	
40.0 GeV	$4.011 \times 10^4$	2.664	0.025	0.032	0.018	2.739		$1.567 \times 10^4$	
80.0 GeV	$8.011 \times 10^4$	2.747	0.058	0.078	0.034	2.917		$2.980 \times 10^4$	
100. GeV	$1.001 \times 10^5$	2.773	0.075	0.102	0.042	2.993		$3.657 \times 10^4$	
140. GeV	$1.401 \times 10^5$	2.811	0.110	0.154	0.059	3.135		$4.962 \times 10^4$	
200. GeV	$2.001 \times 10^5$	2.852	0.166	0.235	0.084	3.337		$6.817 \times 10^4$	
300. GeV	$3.001 \times 10^5$	2.898	0.262	0.374	0.125	3.659		$9.677 \times 10^4$	
400. GeV	$4.001 \times 10^5$	2.930	0.362	0.518	0.167	3.978		$1.230 \times 10^5$	
800. GeV	$8.001 \times 10^5$	3.009	0.778	1.119	0.338	5.244		$2.103 \times 10^5$	
1.00 TeV	$1.000 \times 10^6$	3.035	0.993	1.430	0.424	5.883		$2.463 \times 10^5$	
1.06 TeV	$1.064 \times 10^6$	3.042	1.061	1.528	0.453	6.084			<i>Muon critical energy</i>
1.40 TeV	$1.400 \times 10^6$	3.074	1.426	2.049	0.602	7.150		$3.078 \times 10^5$	
2.00 TeV	$2.000 \times 10^6$	3.116	2.091	2.997	0.872	9.075		$3.822 \times 10^5$	
3.00 TeV	$3.000 \times 10^6$	3.164	3.206	4.575	1.336	12.281		$4.766 \times 10^5$	
4.00 TeV	$4.000 \times 10^6$	3.199	4.341	6.175	1.808	15.523		$5.488 \times 10^5$	
8.00 TeV	$8.000 \times 10^6$	3.284	8.937	12.621	3.774	28.616		$7.358 \times 10^5$	
10.0 TeV	$1.000 \times 10^7$	3.312	11.262	15.867	4.786	35.228		$7.987 \times 10^5$	
14.0 TeV	$1.400 \times 10^7$	3.355	15.901	22.336	6.873	48.466		$8.951 \times 10^5$	
20.0 TeV	$2.000 \times 10^7$	3.401	22.920	32.093	10.080	68.495		$9.987 \times 10^5$	
30.0 TeV	$3.000 \times 10^7$	3.455	34.608	48.327	15.646	102.037		$1.118 \times 10^6$	
40.0 TeV	$4.000 \times 10^7$	3.493	46.360	64.613	21.360	135.826		$1.202 \times 10^6$	
80.0 TeV	$8.000 \times 10^7$	3.588	93.491	129.814	45.342	272.236		$1.406 \times 10^6$	
100. TeV	$1.000 \times 10^8$	3.620	117.123	162.453	57.775	340.971		$1.472 \times 10^6$	